

**GOVERNMENT OF INDIA  
RAILWAYS  
LOK SABHA**

UNSTARRED QUESTION NO:659

ANSWERED ON:19.07.2017

Flexible Solar Panels

Chavan Shri Ashok Shankarrao; Gupta Shri Sudheer; Kirtikar Shri Gajanan Chandrakant; Mahato Shri Bidyut Baran; Radhakrishnan Shri T.; S.R. Shri Vijay Kumar; Singh Shri Kunwar Haribansh

**Will the Minister of RAILWAYS be pleased to state:**

- (a) whether the Railways has fixed any target to reduce emission by 2030;
- (b) if so, the details thereof and the programmes initiated by the Government to achieve the said target;
- (c) whether the Railways will install flexible solar panels and batteries to power fans and lights on 250 local trains;
- (d) if so, the details thereof and the time by which it is likely to be completed, train-wise;
- (e) the total expenditure likely to be incurred thereon; and
- (f) the further steps taken/being taken by the Government to implement sustained energy efficiency measures, maximise use of clean fuel and promote low carbon emissions?

**Answer**

MINISTER OF STATE IN THE MINISTRY OF RAILWAYS

(SHRI RAJEN GOHAIN)

(a) to (f) : A Statement is laid on the Table of the House.

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STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (f) OF UNSTARRED QUESTION NO. 659 BY SHRI S.R.VIJAYAKUMAR, SHRI BIDYUT BARAN MAHATO, SHRI GAJANAN KIRTIKAR, SHRI ASHOK SHANKARRAO CHAVAN, KUNWAR HARIBANSH SINGH, SHRI T. RADHAKRISHNAN AND SHRI SUDHEER GUPTA TO BE ANSWERED IN LOK SABHA ON 19.07.2017 REGARDING FLEXIBLE SOLAR PANELS

(a) Yes, Madam.

(b) Ministry of Environment, Forest & Climate Change (MOEF&CC) is the nodal & notification agency for fixing Emission Standards for Diesel Locomotives and as per MOEF&CC report:

"In order to reduce emission from Diesel locomotives in the country, the interim emission standards for Diesel locomotives are proposed to be drafted in consultation with Ministry of Railways, Rail India Technical and Economic Service (RITES), Engine Development Directorate Research Design and Standards Organisation (RDSO) and CPCB. The process of development of standards is likely to be completed by March 2019, subject to adequate data being made available".

In this regard, Railways have already submitted its interim report to Central Pollution Control Board (MOEF&CC). Moreover Indian Railways has committed to reduce its emission intensity to the extent of 32% by 2030 by taking series of energy efficiency initiatives.

In addition, Indian Railways has also entrusted M/s RITES for "Consultancy contract for Study on Emissions from Diesel Locomotives and setting up of Emission Standards".

(c)&(d) Yes, Madam. A work was sanctioned for fitment of flexible Solar panel based hotel load system for powering light and fans on 250 trailer coaches of Diesel Electric Multiple unit (DEMU) trains. A tender for this work is under process. Initially these modern design panels will be fitted on six coaches and subsequently, upon successful completion of field trial remaining 244 coaches will also be fitted with this system.

The likely date for completion of the project will only be known upon finalization of contract.

(e) Total likely expenditure on the Solar Panel project will be known after finalization of the tender. However the total estimated cost of the work is ₹ 29.16 Cr.

(f) Railways are taking the following further steps to promote use of clean fuels and reduce carbon emissions:

- I. Use of B5 (5% Bio-Diesel) blends of bio diesel in the diesel locomotives.
  - II. Development of Common Rail electronic Direct Injection (CReDI) system.
  - III. Use of Compressed Natural Gas (CNG) based dual fuel system on DEMU trains to achieve 20% substitution of Diesel with gas.
  - IV. Development of Miller cycle based turbochargers for Diesel Locomotives.
  - V. Development of Variable Turbine Geometry (VTG) Turbochargers for Diesel Locomotives.
  - VI. Development of High Effectiveness large after cooler for Diesel Locomotives.
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- VII. Development of CNG based dual fuel system with 40% substitution of diesel for high economy and environmental benefit.
  - VIII. Process to establish two bio diesel manufacturing plants with 30 Ton Per Day (TPD) capacity owned by Railways.
  - IX. Started Exploring for use of Methanol on Railways locomotives.
  - X. Promote use of LNG/CNG as environment friendly industrial gas in place of Liquid Petroleum Gas (LPG) and Acetylene in Railway workshops.
  - XI. Promote and install roof top based solar power generation system in railways workshops and production units.

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